NON-PUBLIC?: N
ACCESSION #: 9506290062
LICENSEE EVENT REPORT (LER)

FACILITY NAME: MONTICELLO NUCLEAR GENERATING PLANT PAGE: 1 OF 5

DOCKET NUMBER: 05000263

TITLE: Reactor Protection System Actuation From Low Reactor Water Level Caused by Main Condensate Pump Trip
EVENT DATE: 07/31/93 LER #: 93-008-01 REPORT DATE: 06/15/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 100%

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Tom Parker TELEPHONE: (612) 295-1014

COMPONENT FAILURE DESCRIPTION:
CAUSE: A SYSTEM: SD COMPONENT: P MANUFACTURER: G080
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

During normal full power operation a Reactor Protection System trip from low reactor water level occurred. The Standby Gas Treatment System and several containment isolation groups were also initiated on low reactor level. Normal post trip procedures were followed to restore stable conditions. One condensate and one feedwater pump remained in operation during the event. Level remained well above the ECCS initiation setpoint. There were no failures or other complications. The immediate cause was a reduction in reactor feedwater flow due to a ground fault relay trip of a main condensate pump. An electrical fault to ground occurred in the motor stator. The motor will be rewound or scrapped.

END OF ABSTRACT

Description

On July 31, 1993, at 0234 hours, with the plant at 100% thermal power, the Reactor Protection System (EIIS System: JC) tripped from reactor low water level. The low water level also initiated the Standby Gas Treatment System (EIIS System: BH), Secondary Containment (EIIS System: NG), Reactor Water Cleanup (EIIS System: CE)(Group 3) and Primary Containment (Group 2) isolations.

The event began when a ground fault relay tripped (EIIS Component: 50) the No. 11 Condensate (EIIS System: SD) pump. This subsequently resulted in a low suction pressure trip of No. 11 Reactor Feedwater (EIIS System: SJ) pump. In response to the condensate pump trip, the control room operator initiated a reduction of reactor recirculation flow to reduce reactor power and thereby reduce feedwater requirements to within the capability of the remaining pumps. However, the feedwater pump tripped and reactor level reached the scram setpoint before a sufficient reduction was achieved. The operati
g crew performed normal
post scram and isolation follow-up procedures to place the plant in a stable condition and restore isolated systems.

The event is reportable per 10CFR50.73 as an unplanned automatic actuation of Engineered Safety Features.

Cause

A fault to ground caused the condensate pump breaker to trip. No fault was determined from: 1) meggering the motor and 2) motor coil resistance checks. The motor was returned to service.

During the following refueling outage (Fall of 1994), the motor was replaced. Subsequent inspections in April of 1995, identified a fault in a previous repair. A small hole was found in the motor stator coil armor (coil wrapping). Apparently, one of the coil strands shorted to ground during steady state motor operation. Pieces of copper were observed in the wrapping, indicative of past arcing to ground. This fault is believed to be the cause of the condensate pump breaker tripping on July 31, 1993. Apparently, the fault cleared itself without making the coil inoperable (other strands in the coil carried a larger current). The motor successfully operated for approximately one year until the plant was shutdown for refueling.

The time of the previous repair cannot be determined. Records show that the repair was present in a 1987 inspection. Current practices do not permit such repairs to be made to stators.

Analysis

This event represents an unnecessary challenge to the reactor protection and isolation systems and an unnecessary plant transient. It occurred at full rated power which is the most severe condition for a loss of feedwater. However, all systems responded as designed and all parameters remained within analyzed values. The No. 12 Condensate and No. 12 Feedwater pumps remained in service during the event. Reactor level remained well above the ECCS initiation level. Therefore, there were no consequences directly affecting public health and safety.

Corrective Actions

The following activities were performed to determine immediate corrective actions. However, no abnormal conditions were found.

1 . Megger of the motor and leads from the breaker cubicle.

2. Resistance checks of each phase of the motor from the breaker cubicle.

3. Breaker tests including megger, contact resistance, and close/trip operation.

4. Set point verification of the ground fault relay.

5. Visual inspection of the ground fault current transformer, breaker terminations, and current transformer cabling at the breaker cubicle.

6. Current transformer test with data compared to previous data.

7. An induction motor rotor condition test.

8. Motor oil sample analysis.

9. Evaluation of 4KV bus voltage levels prior to and during the event, as recorded by the plant computer.

10. Inspection of cable connection condition at the motor termination

box.

11. With the ground fault relay isolated, it was jarred to determine sensitivity to mechanical shock.

12. The individual near the breaker when it tripped was interviewed.

13. Vibration testing and thermographic inspection of the motor and breaker cubicle after restarting the motor.

Subsequent Corrective Actions:

1. Preventive maintenance was performed on the breaker during the 1994 refueling outage. No abnormalities were identified.

2. The motor was replaced during the 1994 refueling outage.

3. The motor fault was identified in an April 1995 inspection. The motor will be rewound or scrapped.

Additional Information

Failed Component Identification:

Induction Motor, 1750 hp, 885 RPM, 4kV, 3 phase
Manufacturer: General Electric
Model: 5K46356AC1

Previous Simulator Events:

One previous event, Licensee Event 87-009, Scram Following Closure of 4KV Breaker Door, involved a trip of the condensate pump breaker. However, unlike the recent event, that event was caused by a forceful closure of the breaker door which initiated the condensate pump trip relays.

NSP Northern States Power Company

Monticello Nuclear Generating Plant
Nuclear Projects Department
2807 West Highway 75
Monticello, Minnesota 55362-0637

June 15, 1995 Report Required by
10 CFR Part 50, Section 50.73

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Revision 1 to LER 93-008
Reactor Protection System Actuation From Low Reactor Level
Caused by Main Condensate Pump Trip

The revision to the Licensee Event Report for this occurrence is attached. This report contains no NRC commitments:

Please contact Tom Parker at (612) 295-1014 if you require further information.

William J Hill
Plant Manager
Monticello Nuclear Generating Plant

c: Regional Administrator - III NRC
Sr Resident Inspector, NRC
NRR Project Manager, NRC
State of Minnesota,
Attn- Kris Sanda

Attachment

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